FACT SHEET FOR NPDES PERMIT WA-002955-6
FACILITY NAME: Birch Bay Wastewater Treatment Plant

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant:	Birch Bay Water and Sewer District
Facility Name and Address:	Birch Bay Wastewater Treatment Plant 7096 Point Whitehorn Road Blaine, WA 98230
Type of Treatment:	Activated Sludge
Discharge Location:	Waterbody Name: Strait of Georgia Latitude: 48° 53' 34" N Longitude: 122° 48' 02" W

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Birch Bay Water and Sewer District was formed initially, by popular vote, as Whatcom County Water District No. 8 in 1968. The first engineering report regarding wastewater was completed in 1970. The wastewater treatment facilities became active in December 1976. The Water and Sewer District is a municipal corporation in the form of a special purpose district as defined under RCW 56 and 57, and provides public water and sewer services to residents in the Birch Bay vicinity. Since 1975, a majority of sewer construction has been on newly developed land under the developer extension policy. Under this policy a developer constructs the sewer lines in accordance with the District's rules and regulations. When construction is complete, the lines have been tested, and the District accepts the results, the newly completed lines are deeded to the District which takes responsibility for operation and maintenance of the lines. The area served by the District is approximately 6,700 acres. The population of the district served changes seasonally. Approximately 3,100 people are year around residents, though the population rises to approximately 12,000 in the summer months. The facility has recently expanded its treatment system by adding a clarifier, an Ultraviolet light (UV) disinfection system, and upgrading equipment. Construction was completed during the summer of 2000.

COLLECTION SYSTEM STATUS

The collection system is composed of approximately 46 miles of gravity and pressure sewers, including ten lift stations. Seven pump stations follow the outline of the beach with nearly 41,000 lineal feet of pipe ranging from 14 inches in diameter to 18 inches. The sewer system, as a whole, is comprised of over 40 miles of 6- to 27-inch gravity sewers, 22,385 lineal feet of force main, and 7,670 lineal feet of 24-inch outfall piping. The lift stations along Birch Bay Drive provide the backbone of the present collection system. Infiltration and inflow (I & I) are two issues that concern every wastewater collection system. "Infiltration" means the addition of ground water into a collection system through joints, the sewer pipe material, cracks, and other defects. Older clay and concrete pipe are porous and allow a degree of infiltration throughout the pipe itself. Inflow tends to be more of a problem than infiltration. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc. into a sewer. This correlates to increases in daily flow after rain events.

TREATMENT PROCESSES

Presently there are no industries that send wastewater to Birch Bay's system. There are several commercial users that include one gas station and six restaurants. The Birch Bay district relies on Whatcom County's building permit process to require grease trap installation at the restaurants.

Four certified operators work at the wastewater plant. The plant manager has a Group 4 certification; there are two Group 2 certifications, and one Group 1 certification. The facility is open from 7:30 in the morning to 4:30 in the afternoon, Monday through Friday. The plant is checked on weekends and holidays, and required sampling is conducted and tested. A telemetry system is in place to notify operators after hours if any systems have gone awry. As noted earlier, the treatment plant clarification and disinfection systems have recently been upgraded.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via outfall into Strait of Georgia at Point Whitehorn. The 24-inch outfall discharges treated effluent 2,000 feet from Point Whitehorn at a depth of 48.5 feet below mean lower low water through a six port diffuser. Each individual diffuser port is 6 inches in diameter. The diffuser was last inspected in 1995 by divers and found to be in good condition.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local landfill.

Birch Bay Water and Sewer District has a six year contract with Tjoelker Enterprises to land apply biosolids. Three years remain with this contract. The Tjoelker site is permitted by the Whatcom County Health Department. Approximately one million gallons of biosolids per year are land applied. Testing is done at the application site as well as the wastewater treatment plant to ensure that biosolids meet U.S. EPA 40 CFR 503 Class B requirements prior to land application. Biosolids are transported by Western Refinery Services.

PERMIT STATUS

The previous permit for this facility was issued on June 29, 1995, and had an expiration date of June 15, 2000. That previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform Bacteria, and Total Residual Chlorine.

An application for permit renewal was submitted to the Department on December 23, 1999, and accepted by the Department on January 12, 2000.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on June 29, 1998. During the history of the previous permit, the Permittee has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. Birch Bay received an award from the Department of Ecology in 2000 and 2001 for exemplary operation of its facility and for being in compliance with its NPDES permit. In early 2001, the Department of Health (DOH) upgraded recreational shellfish beaches for harvest in the Point Whitehorn area. This was done because it was found by DOH that concerns regarding Birch Bay's effluent were no longer warranted.

In the past, the facility has had routine concerns about collection system I&I. These concerns have been reduced through ongoing maintenance of the collection system. Every collection system operator has ongoing concerns about excess water entering their system. This excess water can take up reserve design capacity and in some cases overwhelm the treatment facility. An evaluation of the system using dye-testing, smoke testing, and video inspection was completed in 1999. I&I flow is difficult to calculate at present due to seasonally fluctuating populations. In spite of these difficulties, an evaluation has determined that underground manhole rims, faulty side-sewer connections, and open pipe clean-outs on private property contribute to I&I. As of April 1999, a total of 124 manholes or other faults have been repaired.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization

Parameter	Concentration
Flow (MGD)	.646 (annual average)
BOD (5-day)	11 mg/L (annual average)
TSS	9 mg/L (annual average)
Chlorine	.37 mg/L (annual average)

SEPA COMPLIANCE

Birch Bay wastewater treatment plant is an existing facility and is not presently subject to SEPA requirements.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC), and the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances, the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the July 1999 Engineering Report prepared by CHS Engineering and are as follows:

Table 2: Design Standards for Birch Bay WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	1.28 MGD
Monthly average dry weather flow	0.646 MGD
Monthly average wet weather flow	0.864 MGD
Instantaneous peak flow	3.3 MGD
BOD_5 influent loading (max. month)	2000 lbs./day
TSS influent loading (max. month)	2000 lbs./day
Design population equivalent	12,000

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
Chlorine, Total Residual[1] (concentration)	Average Monthly Limit = 0.5 mg/L Maximum Weekly Average Limit = 0.75 mg/L

The technology-based monthly average limitation for chlorine is derived from standard operating practices. The Water Pollution Control Federation's Chlorination of Wastewater (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, Wastewater Engineering, Treatment, Disposal and Reuse, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. According to WAC 173-221-030(11) (b), the corresponding maximum weekly average is 0.75 mg/liter.

The existing permit has a chlorine limit of 0.5 mg/L as an average monthly limit. A reasonable potential analysis has been performed for this limit. No reasonable potential to exceed the Water Quality Standards has been found (see Attachment C). Birch Bay Water and Sewer District has recently upgraded its facilities. Among these upgrades has been the installation of an Ultraviolet (UV) light disinfection system. The chlorine limit included in this permit is as a backup disinfection system in the event the UV light disinfection system presently in place fails, becomes inoperative, or is taken off-line for cleaning, repair, or other maintenance.

[1] When used. Chlorine may be used as a backup disinfectant in lieu of UV.

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs./day) were calculated as the maximum monthly design flow (1.28 MGD) x concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 320 lbs./day.

A lack of data prevented a reasonable potential analysis to be performed for ammonia (as NH3-N). It is therefore required that the facility take two grab samples per month of its effluent for one year and report laboratory findings on its monthly DMR. After one year's worth of data has been gathered, another reasonable potential analysis will be performed for ammonia to ascertain whether a limit will be required. If a limit is required, this permit will be modified and reissued.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL). Birch Bay listed several analytes being found in their effluent during their renewal testing. These analytes were bromide, chloride, fluoride, zinc, and surfactants. Water quality limits exist only for zinc in marine waters and not for the remaining analytes. It is not known where the bromide and fluoride may have originated. Chloride may have been detected due to the treatment plants proximity to marine waters since the salt in the marine waters is sodium chloride. Sources of surfactants are likely from residential waste water since they are part of detergents and soaps. A reasonable potential was performed for zinc, and it was found that no reasonable potential to pollute exists using the results reported (see Appendix C). A reasonable potential for chlorine has not been included since it will be used by the facility as a backup disinfectant only. The facility now uses UV for disinfection of its effluent.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA, 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the state Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. Due to a lack of ambient monitoring data in the vicinity of the outfall, the ammonia study required by the permit should help in determining whether there has been a degradation of water quality. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody’s critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control, and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The mixing zones for Birch Bay's effluent discharge are:

> A zone where chronic criteria may be exceeded extends a maximum of 182 feet in any horizontal direction from any individual discharge port. The dilution attained within the chronic mixing zone for the critical conditions is 129:1 in the plume flowing in the direction of the current.

A zone where acute criteria may be exceeded extends a maximum distance of 52 feet in any direction from any individual discharge port. The dilution attained within the chronic mixing zone for the critical conditions is 40:1 in the plume flowing in the direction of the current.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Strait of Georgia which is designated as a Class AA receiving water in the vicinity of the outfall. Significant nearby non-point sources of pollutants include various stormwater outfalls. Characteristic uses include the following:

> water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA, 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	14 fecal colonies/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum[2]
Temperature	13 degrees Celsius maximum or incremental increases above background of no greater than 0.3° C
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)
	Chlorine – Reasonable potential calculations were performed and it was found that there was no reasonable potential to exceed state water quality standards for chlorine. Criteria stated in WAC 173-201A (040) for chlorine for marine waters is 13.0 μg/L for an acute limit and 7.5 μg/L for a chronic limit. Chlorine is no longer the primary means of disinfection and is kept as a reserve form of disinfection.
	Ammonia – A lack of data has prevented a reasonable potential analysis to be performed. It is therefore required that the facility take two grab samples per month of its effluent for one year and report laboratory findings on its monthly DMR. After one year's worth of data has been gathered, another reasonable potential analysis will be performed for ammonia to ascertain whether a limit will be required. Criteria stated in WAC 173-201A (040) for ammonia is .233 mg/L for an acute limit and .0019 for a chronic limit, not to be exceeded as a 24-hour average.
	Several additional parameters were listed as being present in Birch Bay's effluent. These are bromide, chloride, fluoride, zinc, and surfactants. The table below shows that these toxics are within regulatory limits for marine waters [WAC 173-201A-040 (3)].

[2] D.O. was reported on Birch Bay's application as 6.5 mg/L (lowest monthly annual average). Since this value is above 6.0 mg/L, this average is well within the regulatory requirement for marine waters [WAC 173-360-201A-030(2)(ii)].

Parameter	Effluent Concentration	Regulatory Limit
Bromide	1.1 mg/L	N/A Marine Waters
Chloride	370 mg/L	N/A Marine Waters
Fluoride	0.2 mg/L	N/A Marine Waters
Zinc	0.042 mg/L	90.0 mg/L acute 81.0 mg/L chronic

A declining population of herring uses shoreline areas from Point Whitehorn to areas south of Cherry Point to spawn. Herring are a primary food of anadromous fish, such as Chinook and Coho salmon. Fisheries and wildlife biologists are studying this population in hopes of determining the causes of this decline. At present, there is no reason to believe that effluent discharges from Birch Bay's wastewater treatment plant have any effect on this population of fish. With the advent of new information, this permit may be modified to reflect this new information.

The mixing zones for Birch Bay's effluent discharge are:

The dilution ratios at design flows and critical ambient conditions are
(i) receiving water: Facility Effluent of 40:1 for the acute zone boundary; and
(ii) receiving water: Facility Effluent of 129:1 for the chronic zone boundary.
The chronic zone extends 182 feet in any horizontal direction from any individual discharge port. The acute zone extends 52 feet in any horizontal direction from any individual discharge port.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

BOD_5--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 7.0 to 8.5 will assure compliance with the Water Quality Standards for Surface Waters.

Fecal Coliform--Under critical conditions, there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Temperature--WAC 173-201A-030 (B)(iv) is a regulatory requirement for temperature in marine waters. "Temperature shall not exceed 13° C in marine waters due to human activities." Influent temperatures reported by Birch Bay in their application are for 12.7° C winter and 16.3° C for summer. Effluent temperatures reported to be the highest monthly average values are 14.9° C for winter and 18.3° C for summer. The temperatures reported were taken in an area of the facility subject to sun exposure. The outfall is 2,000 feet in length and terminates at a depth of over 48 feet. This configuration gives any short term temperature increases ample time to reach ambient temperatures. Temperature does not appear to pose a regulatory concern.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent; therefore, this approach is called whole effluent toxicity (WET) testing.

A condition of the proposed permit is that samples be collected during the summer and during the winter one year prior to submittal of application for the next NPDES permit. For chronic toxicity, these samples shall be analyzed using not only Topside Smelt and Mysid Shrimp, but also Sea Urchin and Sand Dollar (echinoderm fertilization test) since the local Cherry Point Herring stock is in such decline. These herring stocks have historic spawning use of the areas surrounding the discharge outfall used by Birch Bay Water and Sewer District. The echinoderm fertilization test is an appropriate test relating to herring spawning and toxicity.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water acute toxicity, and the Permittee will not be given an acute WET limit and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that acute toxicity has not increased in the effluent.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water chronic toxicity, and the Permittee will not be given a chronic WET limit and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that chronic toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's Water Quality Standards include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health, and does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

A condition of the proposed permit is that samples be collected during the summer and during the winter one year prior to submittal of application for the next NPDES permit. For chronic toxicity, these samples shall be analyzed using not only Topside Smelt and Mysid Shrimp, but also Sea Urchin and Sand Dollar (echinoderm fertilization test) since the local Cherry Point Herring stock is in such decline. These herring stocks have historic spawning use of the areas surrounding the discharge outfall used by Birch Bay Water and Sewer District. The echinoderm fertilization test is an appropriate test relating to herring spawning and toxicity.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for a conventional activated sludge system with secondary treatment.

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for:

PARAMETER	**METHOD**
Biochemical Oxygen Demand (BOD)	SM 5210
Chlorine Total Residual	SM 4500-CL G
Dissolved Oxygen	SM 4500-O G
pH	SM 4500-H
Solids Total Suspended	SM 2540 D
Fecal Coliform Bacteria	SM 9222 D

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S.3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5, as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems, the Permittee is required in permit condition S.7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Whatcom County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will by used by Ecology to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department of Ecology (Department) has been delegated authority to administer the Pretreatment Program [i.e., act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs, because they are in a better position to implement the requirements (e.g., tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f) (1) (iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users [(SIUs) (40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit sixty (60) days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g., tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities [40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.].

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTW's service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition, wastes with excessive BOD, petroleum-based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater, and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular, assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit condition S.10 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection if, and prior to the time, a major wastewater contributor/customer is added to the collection system. The term “major” means an industrial or municipal discharger. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on September 4, 2001, and September 11, 2001, in the *Bellingham Herald* to inform the public that an application had been submitted and to invite comment on the issuance of this permit.

The Department published a Public Notice of Draft (PNOD) on September 14, 2001, in the *Bellingham Herald* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Bellingham Field Office
1204 Railroad Avenue Suite 200
Bellingham, WA 98225.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy, and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft, indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 676-2198, or by writing to the address listed above. This permit and fact sheet were written by Mark Henderson.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART--An acronym for "all known, available, and reasonable methods of prevention, control, and treatment."

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation--The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site run-off, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the Federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction, e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User--A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference--A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) [including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA], sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of >80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of <80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.

Pass Through--A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or which is a cause of a violation of state water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g., facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1. All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and

2. Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, non-contact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

   *The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State Water Quality Standards can be found on the Department's homepage at http.www.ecy.wa.gov.

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

Spreadsheet prepared by G.Shervey, WA Dept. of Ecology, NW Regional Office on 2-5-93. Last revised 4-25-95

	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	State Water Quality Standard		Max concentration at edge of... Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D?	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation	
Parameter	Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*
Birch Bay Chlorine	0.95	0.95	2.0000	11.0000	19.0000	2.00	2.00	NO	0.95	0.913	1.87	0.60	0.55

APPENDIX D--RESPONSE TO COMMENTS

Ecology received comments from two entities during the Public Comment period.

Comments received on April 3, 2002, from Whatcom County Health and Human Services were:

1. Page 6 of the fact sheet: The TREATMENT PROCESSES portion of the BACKGROUND INFORMATION section does not describe the wastewater treatment processes in use at the facility. What treatment systems are in use at the facility and what are the designed functions of each system to meet the waste discharge requirements of the facility?

   It is an omission to not have described the treatment system in use at Birch Bay's waste water facility. Waste water enters the facility through a force main and is mechanically screened of solids by a rotary screen. Screened refuse is hauled away as solid waste. Waste water passes through grit chambers where sand and grit precipitate out. Waste water proceeds to the primary clarifiers where suspended solids are removed from the waste stream. The waste water moves to aeration cells where ambient air is added to assist biologic functions within the waste water. From the aeration basins waste water is moved through secondary clarifiers and eventually through the Ultraviolet (UV) disinfection chamber, and then the effluent is discharged through the outfall.

2. Page 18. The RESIDUAL SOLIDS HANDLING portion of the other permit conditions section does not indicate that the final use and disposal of sewage sludge from the facility is regulated by Washington State Ecology under the Biosolids Management Regulation (WAC 173-308).

   The Residual Solids Handling section of the fact sheet on page 18 cites 40 Code of Federal Regulations (CFR) 503, which are the federal biosolids regulations. The final use and disposal of sewage sludge is regulated by U.S. EPA under 40 CFR 503.

Comments were also received by Birch Bay Water and Sewer District and were addressed.

1. The comment was made that the mass limits included in the permit on page 5 appeared as though they were calculated with a design capacity of 1.0 million gallons per day (MGD) rather than 1.28 MGD. This was noted and changed in the permit.

2. The comment was made that the footnote referring to the Monitoring Requirements on page 6 was inaccurate in stating that two "receiving water samples" were to be taken per month. This was changed to two "final effluent" samples.

3. The comment was made that the Waste Load Assessment referred to on pages 4 and 12 of the permit were inaccurate. Page 4 states that the assessment should be done once during the permit cycle, while page 11 refers to an "annual report." This has been changed on page 11 to "report."

4. The comment was made that a Residual Solids Management Plan was required once during the permit cycle on page 4, while on page 17 no mention was made of what was expected in the plan. The Residual Solids Management Plan has been omitted from the permit since regulation of residual solids or biosolids is under U.S. EPA 40 CFR 503.

5. The comment was made that page 6 of the fact sheet was inaccurate. The sentence in question has been changed to, "Testing is done at the application site as well as the wastewater treatment plant to ensure that biosolids meet U.S. EPA 40 CFR 503 Class B requirements prior to land application." The sentence previously stated that biosolids met a minimum of 3% which was inaccurate.